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TO: Mail Stop Appeal Brief - Patents	FROM: Michael J. Ostrom
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FAX NUMBER: 571-273-8300	TOTAL NO. OF PAGES INCLUDING COVER: 41
PHONE NUMBER:	SENDER'S REFERENCE NUMBER: 1014-067US01/JNP-0314
RE: Appeal Brief	APPLICATION SERIAL NUMBER: 10/660,303

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	John W. Stewart; Wendy R. Cartee; Truman Joe	Confirmation No.	5407
Serial No.:	10/660,303		
Filed:	September 11, 2003	Customer No.:	72689
Examiner:	Yemane Mesfin		
Group Art Unit:	2144		
Docket No.:	1014-067US01/JNP-0314		
Title:	AUTOMATIC ESTABLISHMENT OF NETWORK PERFORMANCE MONITORING COMMUNITIES USING ROUTING PROTOCOLS		

CERTIFICATE UNDER 37 CFR 1.8 I hereby certify that this correspondence is being transmitted via facsimile to the United States Patent and Trademark Office on August 4, 2008.

By: Caryl Harriman
Name: Caryl Harriman

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450,
Alexandria, VA 22313

Dear Sir:

This is an Appeal from the Final Office Action mailed on March 3, 2008 finally rejecting claims 1-37 and 39-53. A Notice of Appeal was filed on June 3, 2008.

Please charge Deposit Account No. 50-1778 the amount of $510.00 to cover the required fee for filing this Brief. Any deficiencies or credits can be charged to Deposit Account No. 50-1778.

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REAL PARTY IN INTEREST

The real party in interest is Juniper Networks, Incorporated, of Sunnyvale, California.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1-37 and 39-53 are pending and are the subject of this Appeal. Claim 38 has been canceled. The claims are set forth in the Claims Appendix.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the Final Office Action mailed June 3, 2008, from which this Appeal has been made.

SUMMARY OF CLAIMED SUBJECT MATTER

A concise summary of independent claims 1, 17, 35, 41 and 46 each of the claims is provided below with reference to the specification and figures.

Claim 1

Claim 1 is directed to a method. Claim 1 recites *receiving a routing communication in accordance with a routing protocol*. Appellant's specification at page 2, paragraph [0006] describes exchanging information, e.g., sending and receiving routing communications, with one or more routing communication protocols. Appellant's specification at page 10, paragraph [0035] further describes receiving routing communications in accordance with routing protocols.

Claim 1 additionally recites that *the routing communication includes an identifier associated with a network device that sent the routing communication and an indicator that indicates the network device that sent the routing communication is capable of responding to*

performance probes used to monitor performance of a network. Appellant's specification at page 15, paragraph [0050] describes the routing communication including an identifier associated with network device 14A (the network device sending the routing communication) and an indicator that specifies the capability of network device 14A to support performance monitoring. Appellant's specification at page 5, paragraph [0024] describes one example embodiment in which the routing communicating including an Internet Protocol (IP) address, e.g., identifier associated with the network device that sent the routing communication, and a BGP community value, e.g., indicator, that indicates to other network devices that network device that sent the routing communication supports performance monitoring.

Claim 1 further recites *sending a performance probe to the network device identified by the identifier to collect network performance statistics*. Appellant's specification at page 12, paragraph [0041] describes sending performance probes to other devices in accordance with the performance community information, which includes the IP address (e.g., identifier) of the network device that sent the routing communication probe. See, e.g., Appellant's specification, page 12, paragraph [0039].

Claim 17

Claim 17 is directed to a network device. Claim 17 recites *a first data structure to store routing information that describes a topology of a network.* Appellant's FIGS. 2 and 5 show a first data structure to store routing information (labeled "routing information 30"). Appellant's specification at page 10, paragraph [0035] describes maintaining and updating the routing information to describe a topology of a network.

Claim 17 additionally recites *a second data structure to store performance community information that identifies one or more network devices that are capable of responding to performance probes used to monitor the network.* Appellant's FIGS. 2 and 5 show a second data structure to store performance community information (labeled "performance community information 32"). Appellant's specification at page 10, paragraph [0036] describes generating and maintaining the performance community information to include information, such as network addresses, that identifies network devices within the network the participate in

performance monitoring. In other words, the performance community information identifies network devices that are capable of responding to performance probes used to monitor the network.

Claim 17 also recites *a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network.* Appellant's FIGS. 2 and 5 illustrate network devices (labeled "14A" and "74," respectively) that include a routing communication manager (labeled "28"). Appellant's specification at page 10, paragraph [0035] describes receiving routing communications in accordance with routing protocols. Paragraph [0035] goes on to describe the routing communications as identifying routes within a network. Appellant's specification at page 15, paragraph [0050] describes the routing communications as further including an identifier associated with network device 14A (the network device sending the routing communication) and an indicator that specifies the capability of network device 14A to support performance monitoring. Appellant's specification at page 5, paragraph [0024] describes one example embodiment in which the routing communicating including an Internet Protocol (IP) address, e.g., identifier associated with the network device that sent the routing communication, and a BGP community value, e.g., indicator, that indicates to other network devices that network device that sent the routing communication supports performance monitoring.

Claim 17 further recites that the routing communication manager *updates the routing information of the first data structure to include the route identified in the routing communication and updates the performance community information of the second data structure to include the network device that sent the routing communication as one of the network devices capable of responding to performance probes.* Appellant's specification at page 10, paragraph [0035] describes the routing communication manager updating the routing information (the first data structure) to accurately reflect the current topology of network. Appellant's specification at page 10, paragraph [0040] describes updating the performance

community information (the second data structure) to identify the network devices that support performance monitoring.

Claim 35

Claim 35 is directed to a system. Claim 35 recites that the system includes *at least one network device that receives routing communications in accordance with a routing protocol.* Appellant's FIGS. 2 and 5 illustrate network devices (labeled "14A" and "74," respectively). Appellant's specification at page 2, paragraph [0006] describes exchanging information, e.g., sending and receiving routing communications, with one or more routing communication protocols. Appellant's specification at page 10, paragraph [0035] further describes receiving routing communications in accordance with routing protocols.

Claim 35 additionally requires that *at least a portion of the routing communications include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network.* Appellant's specification at page 15, paragraph [0050] describes the routing communication including an identifier associated with network device 14A (the network device sending the routing communication) and an indicator that specifies the capability of network device 14A to support performance monitoring. Appellant's specification at page 5, paragraph [0024] describes one example embodiment in which the routing communicating including an Internet Protocol (IP) address, e.g., identifier associated with the network device that sent the routing communication, and a BGP community value, e.g., indicator, that indicates to other network devices that network device that sent the routing communication supports performance monitoring.

Claim 35 also requires that *the network device sends performance probes to the network devices associated with the identifiers to collect network performance information.* Appellant's specification at page 12, paragraph [0041] describes sending performance probes to other devices in accordance with the performance community information, which includes the IP address (e.g., identifier) of the network device that sent the routing communication probe. See, e.g., Appellant's specification, page 12, paragraph [0039].

Claim 35 further requires that the system include *a statistical computing device that aggregates performance information from the network devices and computes collective network performance information for the network based on the aggregated performance information.* Appellant's FIG. 1 shows a statistical computing device (labeled "16"). Appellant's specification at page 9, paragraph [0031] describes the network devices sending the collected performance information to the statistical computing device, which aggregates the information to produce comprehensive or collective network statistics.

Claim 41

Claim 41 is directed to a network device. Claim 41 recites that the network device includes *a routing communication manager that receives routing communications in accordance with a routing protocol.* Appellant's FIGS. 2 and 5 illustrate network devices (labeled "14A" and "74," respectively) that include a routing communication manager (labeled "28"). Appellant's specification at page 10, paragraph [0035] describes the routing communication manager receiving routing communications in accordance with routing protocols.

Claim 41 also requires that *at least a portion of the routing communications include identifiers associated with the network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network.* Appellant's specification at page 15, paragraph [0050] describes the routing communication including an identifier associated with network device 14A (the network device sending the routing communication) and an indicator that specifies the capability of network device 14A to support performance monitoring. Appellant's specification at page 5, paragraph [0024] describes one example embodiment in which the routing communicating including an Internet Protocol (IP) address, e.g., identifier associated with the network device that sent the routing communication, and a BGP community value, e.g., indicator, that indicates to other network devices that network device that sent the routing communication supports performance monitoring.

Claim 41 further recites that the network device also includes *a performance monitoring service card that manages performance sessions with the network devices associated with the*

identifiers by sending performance probes to the network devices to collect network performance statistics. Appellant's FIG. 5 shows a performance service card (labeled as element 76). Appellant's specification at page 19, paragraph [0061] describes the performance service card performing the performance monitoring functionality, which includes managing performance communication sessions with other network devices of an established performance monitoring community. Appellant's specification at page 19, paragraph [0064] describes the performance service card sending performance probes to the network devices of the performance community.

Claim 46

Appellant's claim 46 is directed to *a computer-readable medium comprising instructions that cause a processor* to perform a number of functions. Appellant's specification at page 15, paragraph [0049] describes a computer-readable medium that stores instructions. The instructions of the computer-readable medium may be implemented by executing the instructions with one or more processors.

Appellant's claim 46 recites that the processor *receive a routing communication in accordance with a routing protocol, wherein the routing communication includes an identifier associated with a network device that sent the routing communication and an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes used to monitor performance of a network.* Appellant's specification at page 10, paragraph [0035] describes the routing communication manager receiving routing communications in accordance with routing protocols. Appellant's specification at page 15, paragraph [0050] describes the routing communication including an identifier associated with network device 14A (the network device sending the routing communication) and an indicator that specifies the capability of network device 14A to support performance monitoring. Appellant's specification at page 5, paragraph [0024] describes one example embodiment in which the routing communicating including an Internet Protocol (IP) address, e.g., identifier associated with the network device that sent the routing communication, and a BGP community value, e.g., indicator, that indicates to other network devices that network device that sent the routing communication supports performance monitoring.

Appellant's claim 46 additionally recites that the *processor send a performance probe to the network device identified by the identifier to collect network performance statistics*. Appellant's specification at page 12, paragraph [0041] describes sending performance probes to other devices in accordance with the performance community information, which includes the IP address (e.g., identifier) of the network device that sent the routing communication probe. See, e.g., Appellant's specification, page 12, paragraph [0039].

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The first ground of rejection is the rejection of claims 17-19, 33 and 34 under 35 U.S.C. § 102(e) as being anticipated by Goringe et al (U.S. Patent Number 7,069,343, hereinafter "Goringe").

The second ground of rejection is the rejection of claims 1-16, 20-32, 35-37 and 39-52 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Goringe in view of Beigi et al. (U.S. Patent Number 6,363,056, hereinafter "Beigi").

The third grounds of rejection of claim 53 stands under 35 U.S.C. § 103(a) as being unpatentable over Goringe in view of Beigi and further in view of Martin (U.S. Patent Number 6,744,739).

ARGUMENT

The First Ground of Rejection

The first ground of rejection is the rejection of claims 17-19, 33 and 34 under 35 U.S.C. § 102(e) as being anticipated by Goringe et al (U.S. Patent Number 7,069,343, hereinafter "Goringe"). With respect to the first ground of rejection, Appellant separately argues claims 17, 33 and 34 as a first group, claim 18 as a second group, claim 19 as a third group,

Claims 17, 33 and 34

Appellant argues claims 17, 33 and 34 as a group. Appellant directs to Board to independent claim 17 as the claim representative of the group. As discussed above, claim 17 is directed to a network device comprising a first data structure to store routing information that describes a topology of a network and a second data structure to store performance community information that identifies one or more network devices that are capable of responding to performance probes used to monitor the network.

Claim 17 also requires a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network. Claim 17 further requires that the routing communication manager updates the routing information of the first data structure to include the route identified in the routing communication and updates the performance community information of the second data structure to include the network device that sent the routing communication as one of the network devices capable of responding to performance probes.

As explained in Appellant's specification at page 6, paragraph [0024], Appellant has invented a technique for establishing a performance community, e.g., a set of network devices that support performance monitoring of network, using one or more routing protocols in a modified fashion. Paragraph [0024] explains that network devices utilize one or more routing protocols, e.g., Border Gateway Protocol (BGP), in a modified fashion to indicate their support for self-configured performance monitoring. For example, as specified in claim 17, a routing

communication identifies at least one route within a network and additionally includes an indicator that indicates that the network device that sent the routing communication is capable of responding to performance probes used to monitor the network. Conventional routing protocols do not include any indicator that indicates support for performance monitoring, e.g., the capability to respond to performance probes.

Appellant's claimed invention provides a number of advantages. For example, each of the network devices may identify other network devices within the network that are capable of responding to performance probes and dynamically establish a performance community without the need for a network administrator to manually configure each of the network devices. As a result, the techniques may avoid significant administrative resources that otherwise would be necessary to manually configure the network devices to establish the performance community for collecting the performance characteristics of the network.

Goringe fails to disclose using one or more routing protocols in a modified fashion as set forth in claim 17. As described in detail in Appellant's previous Amendment dated November 27, 2007, Goringe describes a system for discovering a topology of a network.[1] In particular, Goringe uses multiple discovery techniques to discover the network topology.[2] The system described in Goringe performs a first discovery phase to download selected Management Information Base (MIB) information, e.g., using Simple Network Management Protocol (SNMP).[3] The system of Goringe analyzes the downloaded MIB information to generate a portion of the network topology.[4] The MIB discovery phase is protocol independent, i.e., will discover the IP network topology regardless of what routing protocols the devices within the network utilize.[5] However, the first discovery phase is performed in a hop-by-hop manner, i.e., the discovery agent must visit each of the routers of the network.[6] The first discovery phase may, in some instances, be unable to ascertain Layer 3 network topology when the routers are

[1] Goringe, Abstract.
[2] Goringe, column 3, lines 1-7.
[3] Goringe, column 3, lines 12-25.
[4] Goringe, column 5, lines 52-56.
[5] Goringe, column 3, lines 19-20, lines 55-63.
[6] Goringe, column 3, lines 20-22.

unreachable via SNMP, e.g., due to a down state of the contacted interface or a non-existent SNMP agent in the router.[7]

To ensure that the system obtains the network topology of the entire network, and not just a portion of the network, the system described in Goringe performs a second discovery phase to obtain network topology information for a second portion of the network. In particular, the second discovery phase uses a routing protocol agent, e.g., an OSPF agent, **in a conventional, unmodified manner** to obtain the second portion of the network topology.[8] The routing protocol (e.g., OSPF) discovery phase allows discovery of devices in the network that are unreachable via SNMP.[9] The OSPF discovery phase alone, however, would be unable to discover routers that utilize protocols other than OSPF.[10] Thus, the combination of a procotol-independent discovery phase (e.g., SNMP/MIB) with a protocol-dependent discovery phase (e.g., OSPF) enables the system to more accurately obtain the topology of the entire network (i.e., all or near all the devices on the network).

The network topology discovery techniques of Goringe, which include a discovery phase that uses routing communications to obtain topology information, does not use routing communications in a modified fashion to identify which of the network devices within the topology are capable of responding to performance probes, as literally required by Appellant's independent claim 17. To the contrary, the network topology discovery system of Goringe uses routing protocols in their **conventional, unmodified manner** to collect routing information that identifies routes (or links) in the network to define a topology of network devices that communicate using the routing protocol (e.g., OSPF).[11]

In support of the rejection of Appellant's independent claim 17, the Examiner relied on Goringe as disclosing each of the features of Appellant's claims. In particular, the Examiner characterized the data structure storing the MIB information as the first data structure that stores routing information describing a topology of a network.[12] The Examiner also characterized the

[7] Goringe, column 2, lines 46-49.
[8] Goringe, column 3, lines 12-19 and lines 33-41.
[9] Goringe, column 4, lines 8-11.
[10] Goringe, column 3, line 66 – column 4, line 1.
[11] See, e.g., Goringe, column 5, lines 17-20.
[12] Final Office Action, page 4.

link-state database storing link-state information including lists of routers discovered during the discovery process as the second data structure that stores performance community information that identifies one or more network devices that are capable of responding to performance probes used to monitor the network.[13] Appellant disagrees with the Examiner's characterization of the Goringe reference with respect to the features of Appellant's claim 17.

As described above, Goringe describes a second discovery phase in which OSPF is used to discover the topology of the portion of the network executing OSPF. During the discovery of the topology of the network, the OSPF discovery agent obtains link-state information and stores it in a link-state database. The link-state database is a listing of links with each link being defined by end points (end point routers) and a cost metric associated with the link.[14] In this manner, the link-state database stores link information that may be used by the routers to identify paths through the network (i.e., a network topology). Neither the link-state database, nor any other database described in Goringe, stores performance community information that identifies one or more network devices that are capable of responding to performance probes used to monitor the network, as required by Appellant's claim 17.

To the extent the link-state database (or other database generated during the OSPF discovery phase) maintains identities of network devices (e.g., routers), it does not identify the network devices within the network that are capable of responding to performance probes used to monitor performance of the network. Instead, the link-state database obtains identities of routers in the network that communicate using OSPF or other particular routing protocol. This is different than identifying network devices that are capable of responding to performance probes used to monitor performance of the network. As explained in Appellant's specification, to be capable of responding to performance probes the network device must be capable of generating a response to a performance probe and sending the response to the inquiring network device.[15] Goringe fails disclose using performance probes for collecting network performance statistics and therefore could not possibly contemplate identifying the particular network devices within the network that support the capability of responding to such performance probes.

[13] Final Office Action, page 4.
[14] Goringe, column 6, lines 28-31.
[15] See, e.g., paragraph [0037].

Additionally, Goringe fails to disclose a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network, as further required by Applicant's independent claim 17. As described above, Goringe describes using the routing protocol in the conventional sense to communicate routes (or links), a router identifier (address) and other conventional routing information. However, the routing communications exchanged in Goringe do not include an indicator that indicates, directly or indirectly, that the network device that sent the routing communication "is capable of responding to performance probes used to monitor the network," as recited in claim 17 In the Examiner's Response to Arguments on page 3 of the Final Office Action, the Examiner stated that "[s]ince the discovery is broadcasting routing information across the network using a routing protocol[], the discovery process implies routers sending/acknowledging routing information along with their unique identifiers to indirectly indicate monitoring capability." Appellant disagrees with the Examiner's characterization of Goringe with respect to claim 17 for numerous reasons.

Specifically, Goringe fails to disclose or suggest the routing communication including a specific indicator that indicates that a network device that sent the routing communication is capable of responding to *performance* probes. Instead, the routers in Goringe send routing information along with unique identifiers (addresses) associated with the routers in a conventional fashion so as to describe the paths through a network or the links in a network. Thus, at best the routing communication includes an identifier that uniquely identifies the router that sent the communication. However, there is no indicator within the routing communication that indicates that the router is capable of responding to *performance* probes, and the fact that a router in Goringe provides routing functionality (referred to as "monitoring capability") is irrelevant to the ability to respond to *performance probes*, as recited in claim 1. The Examiner has confused routing functionality with an ability to respond to performance probes used to monitor a network. Not every router that communicates using OSPF or other routing protocol is capable of responding to performance probes; nor are they capable of monitoring the *performance* of a network. To be capable of responding to performance probes, the router must

be capable of generating responses to performance probes and sending the responses to other network devices within the performance community. As such, the conventional routing communications in Goringe fail to indicate whether the sending network device is capable of responding to performance probes, as required by claim 17. Instead, the routing communication simply identifies the address of router that sent the routing communication.

Goringe also fails to disclose updating the performance community information of the second data structure to include the network device that sent the routing communication as one of the network devices capable of responding to performance probes. As described above, Goringe fails to maintain such a data structure and therefore fails to contemplate updating such a data structure based on an indicator maintained within the routing communication.

For at least these reasons, Goringe fails to disclose each and every limitation set forth in claims 17, 33 and 34. Therefore, the Office Action has failed to establish a prima facie case for anticipation of Appellants' claims under 35 U.S.C. § 102(e). Appellant respectfully requests withdrawal of this rejection.

Claim 18

Appellant argues claim 18 separately. Claim 18 further requires that the routing communication manager of the network device of claim 17 generate an outbound routing communication in accordance with the routing protocol and send the outbound routing communication to at least one of the one or more network devices identified in the second data structure via a routing communication protocol. Claim 18 further requires that the outbound routing communication identifies the network device as capable of responding to performance probes.

As described above with respect to Appellant's claim 17, Goringe describes generating and sending routing communications that include routing information, such as link-state information, and an identifier that uniquely identifies the router that sent the communication. However, the routing communications generated and sent in Goringe do not identify, directly or indirectly, that the network device is capable of responding to performance probes. Not every router that communicates using OSPF or other routing protocol is capable of responding to

performance probes. To be capable of responding to performance probes, the router may need to execute a software process that is capable of managing performance monitoring sessions, e.g., capable of generating responses to performance probes and sending the responses to other network devices within the performance community. The routing communications fail to indicate whether the network device that generated and sent the routing communication is capable of responding to performance probes. Instead, the routing communication simply identifies the router that sent the routing communication and link-state information. Therefore, Goringe fails to disclose each and every feature of Appellant's claim 18.

Claim 19

Appellant argues claim 19 separately. Claim 19 further requires that the outbound routing communication generated by the network device of claim 18 include an identifier associated with the network device and an indicator that indicates the network device is capable of responding to performance probes. In the Examiner's Response to Arguments on pages 2 & 3 of the Final Office Action, the Examiner characterized the unique identifiers of the routers as an indicator that indirectly indicates monitoring capability. Applicant's dependent claim 19 requires that the outbound routing communication include two identifiers: (1) the ***identifier*** associated with the network device, e.g., the unique identifier of the router, **and** (2) the ***indicator*** that indicates the network device is capable of responding to performance probes. The routing communications in Goringe include only a single identifier associated with the router that sent the communication. None of the other information within the routing communication, e.g., the link-state information, acts as an indicator that indicates, directly or indirectly, the network device is capable of responding to performance probes. Therefore, Goringe fails to disclose each and every feature of Appellant's claim 19.

The Second Ground of Rejection

The second ground of rejection is the rejection of claims 1-16, 20-32, 35-37 and 39-52 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Goringe in view of Beigi et al. (U.S. Patent Number 6,363,056, hereinafter "Beigi"). With respect to the second ground of

rejection, Applicant argues claims 1, 5-7, 9, 11, 14-16, 20-22, 24, 26, 29-31, 33, 34, 46, 48, 49, and 51 as a first group, claim 2 as a second group, claim 3 as a third group, claims 4 and 47 as a fourth group, claims 8 and 23 as a fifth group, claims 10 and 25 as a sixth group, claims 12, 13, 27, 28, 35-37, 39, 40 and 50 as a seventh group, and claims 32 and 41-45 as an eighth group, claim 52 as a tenth group.

Claim 1, 5-7, 9, 11, 14-16, 20-22, 24, 26, 29-31, 33, 34, 46, 48, 49, and 51

Appellant argues claims 1, 5-7, 9, 11, 14-16, 20-22, 24, 26, 29-31, 33, 34, 46, 48, 49, and 51 as a group. Appellant directs to Board to independent claim 1 as the claim representative of the group.

Claim 1 recites a method comprising receiving a routing communication in accordance with a routing protocol. Claim 1 requires that the routing communication include an identifier associated with a network device that sent the routing communication and an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes used to monitor performance of a network. Claim 1 also recites sending a performance probe to the network device identified by the identifier to collect network performance statistics.

Appellant's claim 1 literally requires that the received routing communication includes both (1) an identifier associated with a network device that sent the routing communication **and** (2) an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes. As described above with respect to Appellant's claims 17 and 19, Goringe fails to teach or suggest such features. To the contrary, the routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router that sent the communication. Thus, the routing communications received by the system in Goringe only include the identifier associated with the network device. None of the routing information included within the routing communication, e.g., the link-state information or interface information, functions as an indicator that indicates the network device is capable of responding to performance probes. Instead, the routing information included within the received routing

communications of Goringe is nothing more than conventional routing information obtained via the routing protocol.

In fact, Goringe fails to teach or suggest using performance probes for collecting network performance statistics, as acknowledged by the Examiner in the Final Office Action, and therefore could not possibly contemplate (or have a reason to contemplate) identifying the particular network devices within the network that support the capability of responding to such performance probes. Instead, Goringe identifies network devices within the network that execute the OSPF routing protocol to obtain a portion of the topology of the network.

Moreover, modifying Goringe in view of Beigi fails to arrive at the Appellant's invention as claimed in claim 1. Beigi describes a network performance monitoring technique in which probe packets are sent from an ingress router to an egress router.[16] The Beigi system generates the probe packets by copying every N^{th} packet being sent by the ingress router and modifying the copy of the N^{th} packet to generate the probe packet.[17] Beigi fails to describe determining which of the network devices support performance monitoring, and therefore fails to overcome the shortcomings of Goringe.

However, even if Goringe described receiving a routing communication in accordance with a routing protocol that includes an identifier associated with a network device that sent the routing communication and an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes (which for the reasons set forth above Appellant does not believe Goringe includes such a teaching), Goringe in view of Beigi would still not result in sending a performance probe to the network device identified by the identifier to collect network performance statistics, as further required by claim 1. Instead, Beigi describes randomly generating the performance probe based on the N^{th} packet.[18] In other words, the performance probe is sent to the network device that corresponds to the destination of the N^{th} packet instead of the network device identified by an indicator in the routing communication as required by Applicants' claim 1.

[16] Beigi, Abstract.
[17] Id.
[18] Id. at column 5, lines 63-67.

Claim 2

Appellant argues claim 2 separately. Claim 2 further requires receiving a plurality of routing communications that each identify respective network devices that are capable of responding to performance probes and further comprising dynamically generating data to identify the network devices that are capable of responding to performance probes in response to the routing communications.

As described above with respect to claim 1, on which claim 2 is dependent, Goringe fails to teach or suggest the routing communications fail to identify respective network devices that are capable of responding to performance probes. To the contrary, the routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router. The identifier associated with the router does not, however, identify the router as capable of responding to performance probes.

Moreover, any data structure generated by the system in Goringe using the information contained in the routing communications does not identify the network devices that are capable of responding to performance probes. Instead, data structures generated using the information contained in the routing communications describe a topology of the network. The Beigi reference provides no teachings to overcome these deficiencies of Goringe.

Claim 3

Appellant argues claim 3 separately. In addition to the requirements of claim 1 on which claim 3 relies, claim 3 further requires that the routing communication includes routing information describing a topology of the network. As such, claim 3 requires that the routing communication include (1) an identifier associated with a network device that sent the routing communication (2) an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes and (3) routing information describing a topology of the network.

As described above with respect to Appellant's claim 1, Goringe describes the routing communications as including routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router that sent the

communication. Thus, the routing communications received by the system in Goringe do not include an indicator that indicates the network device is capable of responding to performance probes. Instead, the routing information included within the received routing communications of Goringe is nothing more than conventional routing information obtained via the routing protocol. The Beigi reference provides no teachings to overcome these deficiencies of Goringe.

Claim 4 and 47

Appellant argues claims 4 and 47 as a group. Appellant directs to Board to independent claim 4 as the claim representative of the group.

Claim 4 includes all the requirements of base claim 1, but further recites generating an outbound routing communication in accordance with the routing protocol and sending the outbound routing communication to the network device associated with the identifier via the routing protocol. Claim 4 requires that the outbound routing communication identifies at least the sending network device as a supporter of performance monitoring.

In the Final Office Action, the Examiner characterized the unique identifiers of the routers as an indicator that indirectly indicates monitoring capability. Applicant's dependent claim 19 requires that the outbound routing communication identifies that the network device as a supporter of *performance* monitoring. The routing communications in Goringe include only an identifier associated with the router that sent the communication. The identifier associated with the router does not, however, identify the network device as a supporter of performance monitoring either directly or indirectly. Moreover, none of the other information within the routing communication, e.g., the link-state information, identify the network device as a supporter of performance monitoring either directly or indirectly.

Claim 8 and 23

Appellant argues claims 8 and 23 as a group. Appellant directs to Board to independent claim 8 as the claim representative of the group.

Claim 8, which includes all the limitations of claim 6 and claim 1, further requires sending a plurality of performance probes that each is associated with the same quality of service

level. Beigi fails to teach or suggest sending a plurality of performance that each is associated with the same quality of service level. In fact, Beigi does not mention the quality of service level associated with the performance packets at all.

Claim 10 and 25

Appellant argues claims 10 and 25 as a group. Appellant directs to Board to independent claim 10 as the claim representative of the group.

Claim 10, which includes all the limitations of claim 6 and claim 1, further requires sending a first performance probe having a first quality of service level to the network device and sending a second performance probe having a second quality of service level to the network device. As described above with respect to Appellant's claim 8, Beigi fails to teach or suggest sending a plurality of performance that each is associated with the same quality of service level. In fact, Beigi does not mention the quality of service level associated with the performance packets at all.

Claim 12, 13, 27, 28, 35-37, 39, 40 and 50

Appellant argues claims 12, 13, 27, 28, 35-37, 39, 40 and 50 as a group. Appellant directs to Board to independent claim 35 as the claim representative of the group.

Claim 35 is directed to a system that comprises at least one network device that receives routing communications in accordance with a routing protocol. Claim 35 requires that at least a portion of the routing communications include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network. Claim 35 additionally requires that the network device sends performance probes to the network devices associated with the identifiers to collect network performance information.

The system of Appellant's claim 35 also includes a statistical computing device that aggregates performance information from the network devices and computes collective network performance information for the network based on the aggregated performance information.

In the rejection of claim 35, the Examiner indicated that Goringe includes all the elements of claim 35, except sending performance probes to the network devices associated with the identifiers to collect network performance information and a statistical computing device. The Examiner relied on Beigi for these features not included within Goringe. Appellant disagrees with the Examiner's characterization of Goringe and Beigi.

As described in detail with respect to Appellant's claim 1 above, Goringe fails to teach or suggest receiving routing communications, at least a portion of which include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network, as required by Appellant's claim 35. To the contrary, the routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router that sent the communication. Thus, the routing communications received by the system in Goringe only include the identifier associated with the network device. None of the routing information included within the routing communication, e.g., the link-state information or interface information, functions as an indicator that indicates the network device is capable of responding to performance probes. Instead, the routing information included within the received routing communications of Goringe is nothing more than conventional routing information obtained via the routing protocol.

In fact, Goringe fails to teach or suggest using performance probes for collecting network performance statistics, as acknowledged by the Examiner in the Final Office Action, and therefore could not possibly contemplate (or have a reason to contemplate) identifying the particular network devices within the network that support the capability of responding to such performance probes. Instead, Goringe identifies network devices within the network that execute the OSPF routing protocol to obtain a portion of the topology of the network.

Goringe also fails to teach or suggest *a statistical computing device that aggregates performance information from the network devices and computes collective network performance information*, as required by Appellant's claim 35. In support of the rejection of this feature of Appellant's claim 35, the Examiner characterized column 5, lines 9-64 of Goringe as

disclosing such a feature. Applicant disagrees with the Examiner's characterization of the referenced portion of Goringe. The referenced section of Goringe describes the multi-phased network topology discovery process. The network topology of a network is not the same as performance information of the network, and this provides no teaching of *a statistical computing device that aggregates performance information from the network devices and computes collective network performance information.*

As described in Appellant's specification at page 2, paragraph [0005], the performance information may be used to measure the quality of network services provided to customers. Several examples were provided in Appellant's specification, such as the delay from the first network device to each of the other network devices, the delay from the other network devices to the first network device, the roundtrip delay, average delays (both ways and roundtrip), maximum delays, minimum delays, jitter, throughput, and packet loss. Discovering a network topology of a network does not provide any sort of performance information that measures quality of the network services provided to the customer. Instead, the network topology provides a "mapping" of routers and other network devices in the network.

Beigi also fails to teach or suggest a statistical computing device that aggregates performance information from the network devices and computes collective network performance information, as required by Appellant's claim 35. Beigi describes the network device that receives the probe packet computing delay statistics and storing the delay statistics in a statistics database. Beigi uses the computed delay statistics to determine whether to perform a heavy weight performance monitoring process that sends performance probes. However, Beigi fails to teach or suggest a statistical computing device that aggregates performance information from the network devices and computes ***collective*** network performance information, as required by Appellant's claim 35. In other words, Appellant's claim 35 requires a separate device that aggregates performance information collected by other network devices to generate performance information for the network as a collective whole. To the contrary, the Beigi reference describes the network device collecting performance information for the single network device that receives the performance probes.

Claim 32 and 41-45

Appellant argues claims 32 and 41-45 as a group. Appellant directs the board to independent claim 41 as the claim representative of the group.

Appellant's claim 41 is directed to a network device that includes a routing communication manager that receives routing communications in accordance with a routing protocol. Claim 41 requires that at least a portion of the routing communications include identifiers associated with the network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network.

Appellant's claim 41 additionally recites a performance monitoring service card that manages performance sessions with the network devices associated with the identifiers by sending performance probes to the network devices to collect network performance statistics. In other words, Appellant's claim 41 requires a dedicated service card that performs the performance monitoring functions. A similar feature is required in dependent claim 32.

In the rejection of claim 41, the Examiner indicated that Goringe includes all the elements of claim 41, except sending performance probes to the network devices associated with the identifiers to collect network performance information. For this feature, the Examiner relied again on Beigi. Appellant disagrees with the Examiner's characterization of Goringe and Beigi.

As described in detail with respect to Appellant's claim 1 above, Goringe fails to teach or suggest receiving routing communications, at least a portion of which include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network, as required by Appellant's claim 41. To the contrary, the routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router that sent the communication. Thus, the routing communications received by the system in Goringe only include the identifier associated with the network device. None of the routing information included within the routing communication, e.g., the link-state information or interface information, functions as an indicator that indicates the network device is capable of

responding to performance probes. Instead, the routing information included within the received routing communications of Goringe is nothing more than conventional routing information obtained via the routing protocol.

In fact, Goringe fails to teach or suggest using performance probes for collecting network performance statistics, as acknowledged by the Examiner in the Final Office Action, and therefore could not possibly contemplate (or have a reason to contemplate) identifying the particular network devices within the network that support the capability of responding to such performance probes. Instead, Goringe identifies network devices within the network that execute the OSPF routing protocol to obtain a portion of the topology of the network.

Goringe also fails to teach or suggest a performance monitoring service card that manages performance sessions with the network devices, as required by Appellant's claim 41. In support of the rejection of this feature of Appellant's claim 41, the Examiner characterized column 5, line 9 – column 6, line 31 of Goringe as disclosing such a feature. Applicant disagrees with the Examiner's characterization of the referenced portion of Goringe. The referenced section of Goringe describes the multi-phased network topology discovery process. The SNMP discovery agent than manages the SNMP discovery phase is not the same as a performance service card that manages performance sessions.

First, as described in detail above, the discovery phases of the Goringe network topology discovery techniques are not performance sessions. In fact, Goringe fails to teach or suggest conducting any sort of performance sessions. Second, the SNMP and/or OSPF discovery agents are software processes executed on a processor of the network device. Goringe does not describe the processor that executes these software processes as residing on a dedicated service card. In fact, there is no mention in Goringe of any sort of card for a network device.

Beigi also fails to teach or suggest a performance monitoring service card that manages performance sessions with the network devices, as required by Appellant's claim 41. In support of the rejection of claim 32, which includes similar limitations to claim 41, the Examiner characterized element 907, 911 and 913 as the separate service card. Beigi does not describe these elements as being implemented within a separate service card. In fact, like Goringe, Beigi fails to provide any mention of a service card for a network device.

Claim 52

Appellant argues claim 52 separately. Claim 52, which includes all the limitations of claim 1, further requires that the routing communication include a uniquely defined routing protocol attribute that indicates the network device that sent the routing communication is capable of responding to performance probes. In other words, claim 52 literally requires that there be a routing protocol attribute that specifically indicates the network device that sent the routing communication is capable of responding to performance probes.

In support of the rejection of claim 52, the Examiner again indicated that because the routing communications include routing information along with unique identifiers associated with the router that the routing communications indirectly indicate their monitoring capability. As described above with respect to claim 1, the routing communication received in Goringe does not indicate, either directly or indirectly, the capability of responding to performance probes. However, even if the routing communication is viewed as indirectly indicating monitoring capability (which for the reasons set forth above Goringe does not teach), Appellant's claim 52 requires that there be a specific routing protocol attribute that directly indicates the network device that sent the routing communication is capable of responding to performance probes. Goringe fails to teach or suggest such a routing protocol attribute. Beigi fails to overcome the deficiencies of Goringe.

The Third Ground of Rejection

The third ground of rejection is the rejection of claim 53 under 35 U.S.C. § 103(a) as being unpatentable over Goringe in view of Beigi and further in view of Martin (U.S. Patent Number 6,744,739).

Claim 53

Appellant argues claim 53 separately. Claim 53, which includes all the limitations of claims 1 and 52, further requires the routing protocol to include a uniquely defined BGP community attribute that indicates the network device that sent the routing communication is

capable of responding to performance probes. In other words, claim 53 literally requires that there be a BGP community attribute that specifically indicates the network device that sent the routing communication is capable of responding to performance probes.

As described above with respect to claim 52, the routing communication received in Goringe does not indicate, either directly or indirectly, the capability of responding to performance probes. However, even if the routing communication is viewed as indirectly indicating monitoring capability (which for the reasons set forth above Goringe does not teach), Appellant's claim 52 requires that there be a specific BGP community attribute that directly indicates the network device that sent the routing communication is capable of responding to performance probes. Goringe, Beigi and Martin all fail to teach or suggest such a BGP community attribute. In fact, none of the references makes any reference to a BGP community attribute at all.

CONCLUSION OF ARGUMENT

The Examiner has failed to meet the burden of establishing a prima facie case of anticipation or obviousness with respect to claims 1-37 and 39-53. In view of Appellants' arguments, the final rejection of Appellants' claims is improper and should be reversed. Reversal of all pending rejections and allowance of all pending claims is respectfully requested.

Date: 8-4-08

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APPENDIX: CLAIMS ON APPEAL

Claim 1 (Previously Presented) A method comprising:

receiving a routing communication in accordance with a routing protocol, wherein the routing communication includes an identifier associated with a network device that sent the routing communication and an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes used to monitor performance of a network; and

sending a performance probe to the network device identified by the identifier to collect network performance statistics.

Claim 2 (Previously Presented) The method of claim 1, wherein receiving the routing communication includes receiving a plurality of routing communications that each identify respective network devices that are capable of responding to performance probes and further comprising dynamically generating data to identify the network devices that are capable of responding to performance probes in response to the routing communications.

Claim 3 (Previously Presented) The method of claim 1, wherein the routing communication further includes routing information describing a topology of the network.

Claim 4 (Previously Presented) The method of claim 1, further comprising:

generating an outbound routing communication in accordance with the routing protocol; and

sending the outbound routing communication to the network device associated with the identifier via the routing protocol, wherein the outbound routing communication identifies at least the sending network device as a supporter of performance monitoring.

Claim 5 (Original) The method of claim 1, further comprising generating the performance probe to include a timestamp that indicates a time at which the probe was sent.

Claim 6 (Original) The method of claim 1, wherein sending the performance probe comprises sending a plurality of performance probes.

Claim 7 (Original) The method of claim 6, wherein each of the performance probes is addressed to a common destination network device.

Claim 8 (Original) The method of claim 6, wherein each of the performance probes is associated with the same quality of service level.

Claim 9 (Original) The method of claim 6, wherein sending the plurality of performance probes comprises sending the plurality of performance probes at a periodic rate over an interval of time.

Claim 10 (Original) The method of claim 6, wherein sending the plurality of performance probes comprises:

sending a first performance probe having a first quality of service level to the network device; and

sending a second performance probe having a second quality of service level to the network device.

Claim 11 (Previously Presented) The method of claim 1, further comprising:

receiving a response to the performance probe from the network device;

adding a timestamp to the response to indicate the time of reception of the response; and

storing information contained in the response.

Claim 12 (Original) The method of claim 11, further comprising forwarding the stored information to a centralized computing device for computing comprehensive network performance statistics.

Claim 13 (Previously Presented) The method of claim 11, further comprising:

computing network performance statistics from the information contained in the response; and

forwarding the network performance statistic to a centralized device for computing comprehensive network performance statistics.

Claim 14 (Original) The method of claim 1, further comprising:

receiving an inbound performance probe from the network device; and

sending a response to the inbound performance probe to the network device, wherein the response to the performance probe includes the received performance probe and a timestamp indicating the time of reception of the inbound performance probe.

Claim 15 (Original) The method of claim 1, wherein the network performance statistics includes at least one of network delay, network jitter, network throughput, network availability and network packet loss.

Claim 16 (Original) The method of claim 1, wherein the routing protocol comprises one of Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Intermediate System – Intermediate System (ISIS), and Routing Information Protocol (RIP).

Claim 17 (Previously Presented) A network device comprising:

a first data structure to store routing information that describes a topology of a network;

a second data structure to store performance community information that identifies one or more network devices that are capable of responding to performance probes used to monitor the network; and

a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network, updates the routing information of the first data structure to include the route identified in the routing communication and updates the performance community information of the second data structure to include the network device that sent the routing communication as one of the network devices capable of responding to performance probes.

Claim 18 (Previously Presented) The network device of claim 17, wherein the routing communication manager of the network device generates an outbound routing communication in accordance with the routing protocol, and sends the outbound routing communication to at least one of the one or more network devices identified in the second data structure via a routing communication protocol, wherein the outbound routing communication identifies the network device as capable of responding to performance probes.

Claim 19 (Previously Presented) The network device of claim 18, wherein the outbound routing communication includes an identifier associated with the network device and an indicator that indicates the network device is capable of responding to performance probes.

Claim 20 (Previously Presented) The network device of claim 17, further comprising a performance monitoring manager that collects network performance statistics by sending one or more performance probes to at least a portion of the one or more network devices identified in the second data structure.

Claim 21 (Previously Presented) The network device of claim 20, wherein the performance probes include a timestamp indicating a time at which the performance probe is sent.

Claim 22 (Previously Presented) The network device of claim 20, wherein the performance monitoring manager sends a plurality of performance probes to one of the network devices identified in second data structure.

Claim 23 (Previously Presented) The network device of claim 22, wherein each of the plurality of performance probes is associated with a same quality of service level.

Claim 24 (Previously Presented) The network device of claim 22, wherein the performance monitoring manager sends each of the plurality of performance probes at a periodic rate over an interval of time.

Claim 25 (Previously Presented) The network device of claim 20, wherein the performance monitoring manager sends a first performance probe associated with a first quality of service level to a first one of the one or more network devices identified in the second data structure and a second performance probe associated with a second quality of service level to the first one of the network devices.

Claim 26 (Previously Presented) The network device of claim 20, wherein the performance monitoring manager receives a response to at least one of the performance probes, adds a timestamp to the response to indicate a time of reception of the response, and stores information contained in the response.

Claim 27 (Original) The network device of claim 26, wherein the performance monitoring manager forwards the stored information to a centralized computing device for computing comprehensive network performance statistics.

Claim 28 (Original) The network device of claim 26, wherein the performance monitoring manager computes the network performance statistics from the information contained in the response and forwards the network performance statistics to a centralized device for computing comprehensive network performance statistics.

Claim 29 (Previously Presented) The network device of claim 20, wherein the performance monitoring manager receives an inbound performance probe from one of the network devices identified in the second data structure and sends a response to the inbound performance probe, wherein the response includes the inbound performance probe and a timestamp indicating the time of reception of the inbound performance probe.

Claim 30 (Original) The network device of claim 20, further comprising a processor and wherein at least one of the routing communication manager and the performance monitoring manager comprises a software process executing on the processor.

Claim 31 (Original) The network device of claim 20, wherein at least one of the routing communication manager and the performance monitoring manager are executed in hardware.

Claim 32 (Original) The network device of claim 20, further comprising a dedicated service card that implements the performance monitoring manager.

Claim 33 (Original) The network device of claim 17, wherein the network performance statistics include at least one of network delay, network jitter, network throughput, network availability and network packet loss.

Claim 34 (Original) The network device of claim 17, wherein the routing protocol comprises one of Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Intermediate System – Intermediate System (ISIS), and Routing Information Protocol (RIP).

Claim 35 (Previously Presented) A system comprising:

at least one network device that receives routing communications in accordance with a routing protocol, wherein at least a portion of the routing communications include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network, wherein the network device sends performance probes to the network devices associated with the identifiers to collect network performance information; and

a statistical computing device that aggregates performance information from the network devices and computes collective network performance information for the network based on the aggregated performance information.

Claim 36 (Original) The system of claim 35, wherein the statistical computing device displays the collective network performance statistics to a user.

Claim 37 (Original) The system of claim 36, wherein the statistical computing device displays the network performance statistics to the user in real-time.

Claim 38 (Canceled).

Claim 39 (Original) The system of claim 35, wherein each of the network devices exchange the routing communication via one of Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), and Intermediate System – Intermediate System (ISIS).

Claim 40 (Previously Presented) The system of claim 35, wherein each of the at least one network device collects performance information by sending performance probes to at least a portion of the network devices associated with the identifiers, receiving responses to the performance probes, and adding timestamps to the responses to indicate the time of reception of the responses.

Claim 41 (Previously Presented) A network device comprising:

a routing communication manager that receives routing communications in accordance with a routing protocol, wherein at least a portion of the routing communications include identifiers associated with the network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network; and

a performance monitoring service card that manages performance sessions with the network devices associated with the identifiers by sending performance probes to the network devices to collect network performance statistics.

Claim 42 (Previously Presented) The network device of claim 41, wherein the performance monitoring service card generates performance probes and sends the performance probes to the network devices associated with the identifiers to collect network performance statistics, wherein each of the performance probes include a timestamp indicating a time at which the respective one of the performance probes was sent.

Claim 43 (Previously Presented) The network device of claim 41, wherein the performance monitoring service card receives a response to at least one of the performance probes, adds a timestamp to the response to indicate the time of reception of the response, and stores information contained in the response.

Claim 44 (Previously Presented) The network device of claim 41, wherein the performance monitoring service card receives an inbound performance probe from one of the network devices associated with a respective one of the identifiers and sends a response to the inbound performance probe, wherein the response to the inbound performance probe includes the inbound performance probe and a timestamp indicating the time of reception of the inbound performance probe.

Claim 45 (Original) The network device of claim 41, wherein the routing protocol comprises one of Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), and Intermediate System – Intermediate System (ISIS).

Claim 46 (Previously Presented) A computer-readable medium comprising instructions that cause a processor to:

receive a routing communication in accordance with a routing protocol, wherein the routing communication includes an identifier associated with a network device that sent the routing communication and an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes used to monitor performance of a network; and

send a performance probe to the network device identified by the identifier to collect network performance statistics.

Claim 47 (Previously Presented) The computer-readable medium of claim 46, further comprising instruction that cause the processor to:

generate an outbound routing communication in accordance with the routing protocol; and

send the outbound routing communication to the network device associated with the identifier via the routing protocol, wherein the outbound routing communication identifies at least the sending network device as capable of responding to performance probes.

Claim 48 (Original) The computer-readable medium of claim 46, further comprising instructions that cause the processor to generate the performance probe to include a timestamp that indicates a time at which the probe was sent.

Claim 49 (Previously Presented) The computer-readable medium of claim 46, further comprising instruction that cause the processor to:

receive a response to the performance probe from the network device to which the performance probe was sent;

add timestamp to the response to indicate the time of reception of the response; and

store information contained in the response.

Claim 50 (Original) The computer-readable medium of claim 49, further comprising instruction that cause the processor to further comprising forward the stored information to a centralized computing device for computing comprehensive network performance statistics.

Claim 51 (Original) The computer-readable medium of claim 46, further comprising instruction that cause the processor to:

receive an inbound performance probe from the network device; and

send a response to the inbound performance probe to the network device, wherein the response to the performance probe includes the received performance probe and a timestamp indicating the time of reception of the inbound performance probe.

Claim 52 (Previously Presented) The method of claim 1, wherein receiving a routing communication comprises receiving a routing communication in accordance with a routing protocol that includes a uniquely defined routing protocol attribute that indicates the network device that sent the routing communication is capable of responding to performance probes.

Claim 53 (Previously Presented) The method of claim 1, receiving a routing communication comprises receiving a routing communication in accordance with a routing protocol that includes a uniquely defined BGP community attribute that indicates the network device that sent the routing communication is capable of responding to performance probes.

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APPENDIX: EVIDENCE

None

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APPENDIX: RELATED PROCEEDINGS

None